

**I. RESTRICTION/ELECTION**

The Office Action makes the Restriction Requirement final. However, Applicants respectfully submit that linking claim 17, as amended, is allowable. Thus, rejoinder of the method claims 1-12 is required.

Withdrawal of the Restriction Requirement and rejoinder of claims 1-12 are respectfully requested.

**II. DRAWINGS**

The Office Action indicates that the drawings are objected to as failing to comply with 37 C.F.R. §1.84 because the reference number 28 is not mentioned in the description. In response, Applicants have amended the specification to describe the reference number 28 of the figures.

Reconsideration and withdrawal of this objection are respectfully requested.

**III. REJECTIONS UNDER §102**

**A. JP 61-284573**

Claims 13 and 14 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by JP 61-284573 (JP '573). Applicants respectfully traverse this rejection.

JP '573 discloses a discharge electrode for generating plasma discharge. According to JP '573, magnets are placed on a magnet supporting stand made of iron in a concentric circle shape, and targets made of a ferromagnetic material, which are used as a cathode, are placed on the magnets. Additional targets are divided into a concentric circle shape by forming ring-shaped grooves. The reference also discloses that the anodes are cooled by water. This electrode is then used to generate plasma according to the Penning principle by impressing high voltage between the anodes and the targets.

Contrary to the assertion of the Office Action, JP '573 does not disclose a cathode for holding a sample as claimed. The sample 4 referred to by the Office Action is clearly identified as a groove in the Abstract. Thus, the cathode identified by the Office Action is

not a cathode designed to hold a metal sample as claimed. As such, the language of the claim brings life and meaning into the language of the preamble, and thus should be construed accordingly.

Furthermore, the structure disclosed in the cited reference is used to generate a plasma, but there is no disclosure regarding a sputtering process. Thus, the cited reference fails to disclose each and every element of the claimed invention.

In view of the above remarks, Applicants respectfully submit that this rejection should be withdrawn. Reconsideration and withdrawal of this rejection are respectfully requested.

**B. Labedan et al. (U.S. 3,779,885)**

Claims 15 and 16 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Labedan et al. (U.S. Patent No. 3,779,885). Applicants respectfully traverse this rejection.

As amended, claim 15 specifies an analyzing apparatus that also includes a reaction chamber connected to the pretreatment chamber through a shutter and a detector for detecting trace elements given off by the heated metal sample. The cited reference fails to disclose either of these elements specified by independent claim 15. Thus, Labedan fails to disclose each and every feature of the claimed invention.

In view of the above remarks and amendments of claim 15, the rejection should be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

**C. Havas et al. (U.S. 3,664,942)**

Claim 17 is rejected under 35 U.S.C. §102(b) as allegedly anticipated by Havas et al. (U.S. Patent No. 3,664,942). Applicants respectfully traverse this rejection.

As amended, claim 17 specifies an analyzing apparatus that further comprises a reaction chamber connected to the pretreatment chamber having a heating means for heating the metal sample and means for detecting trace elements given off by the metal sample.

Havas fails to disclose the reaction chamber having a heating means and detecting means.

Thus, Havas fails to disclose each and every feature of the claimed invention.

In view of the above remarks and the amendment of claim 17, this rejection should be withdrawn. Reconsideration and withdrawal of this rejection are respectfully requested.

**IV. CONCLUSION**

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,

  
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JAO/SXT:amw

Attachment:  
Appendix

Date: March 4, 2003

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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## APPENDIX

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Changes to Specification:

Page 4, lines 15-20:

The sample S, from which contaminants are removed by the pretreatment apparatus 4, is introduced into a reaction chamber 15 of the analyzer 3 through a shutter 26 for element analysis of the sample S. An inert gas, such as a helium gas source, is introduced into the reaction chamber 15 through a valve 28. For instance, for oxygen analysis, the sample S is heated in helium gas in a graphite crucible 16 by a heater 30, and generated CO gas and/or CO<sub>2</sub> gas is quantitatively determined by a detector 32 such as an infrared-ray absorbing device or any other suitable device

Page 5, line 30 – page 6, line 14:

In any embodiment of the pretreatment apparatus described above, it is preferable that a cooling device is provided to compulsively cool the counter electrodes of an electrode for holding a metal sample, as described below, so as to cool the electrodes. FIG 3 is a cross-sectional view of an exemplary pretreatment apparatus including the cooling device. The anodes 1 include metal plates 7 as the counter electrodes of a metal sample. The metal plates 7 are cooled by running a cooling pipes 42 in a wall body 41 of the sample chamber 5 that supports the metal plates 7. The metal plates 7 are arranged at top and bottom wall surfaces, sandwiching a cathode therebetween. However, in some embodiments, it is preferable to provide metal plates 7 at four wall surfaces, including left and right wall surfaces. Further, in some embodiments, it is preferable to provide an anode at six wall surfaces of the sample chamber 5, thus more evenly cleaning the surface of metal samples. Other structural characteristics of the pretreatment apparatus are basically the same as those of embodiments described above. In this example, the sample input port 24 has a slide

gate 27 and a cylinder 29 to shift the slide gate 27 right and left to open and close the sample input port 24.

Changes to Claims:

The following is a marked-up version of the amended claims:

Claims 18 is added.

15. (Amended) A ~~pretreatment~~ analyzing apparatus for element analysis of a metal sample, comprising:

an anode for holding a metal sample;

cathodes arranged to counter the anode for sputtering;'

a pretreatment chamber for storing the anode, the cathodes and the metal sample under an inert gas atmosphere; and

a cooling device for compulsively cooling at least one of the cathodes or the anode;

a reaction chamber, connected to the pretreatment chamber through a shutter, for heating the metal sample; and

a detector for detecting trace elements given off by the heated metal sample.

16. (Amended) The ~~pretreatment~~ analyzing apparatus according to claim 15, comprising a plurality of the cathodes arranged to counter the anode, and the cooling device cools at least one of the cathodes.

17. (Amended) A ~~pretreatment~~ analyzing apparatus for element analysis of a metal sample, comprising:

a pretreatment chamber having means for removing contaminants on the surface of the metal sample by sputtering; and

means for cooling at least one electrode for sputtering; and

\_\_\_\_\_ a reaction chamber connected to the pretreatment chamber having means for heating the metal sample and means for detecting trace elements given off by the heated metal sample.